



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/260,794	03/01/1999	DOUGLAS S. ONDRICEK	03401.P090	6932
27520	7590	10/03/2003	EXAMINER	
FORMFACTOR, INC. LEGAL DEPARTMENT 2140 RESEARCH DRIVE LIVERMORE, CA 94550			BREWSTER, WILLIAM M	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/260,794	Applicant(s) ONDRICEK ET AL.	
	Examiner William M. Brewster	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,7-12,14-26,29-33 and 68-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 7-12, 14-26, 29-33, 68-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 7-11, 12, 16, 29, 31, 68, 69, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al., U.S. Patent No. 5,949,242 in view of Friedman, U.S. Patent No. 6,078,845, further in view of Miyauchi et al., U.S. Patent No. 5,528,825, from IDS.

Wood teaches a method comprising: singulating at least one semiconductor wafer into a plurality of singulated dice; in figs. 1, 2, and 3, depositing said plurality of said singulated dice 14 unpackaged into said carrier circuit 32, depositing singulated die into said carrier, said carrier holding said singulated die with or without packaging of die, in fig. 2, storing on a plurality of contact pads 16, and testing said singulated dice while deposited in said carrier, in fig. 9 mounting carrier on substrate 10E, at the timing convenience of the manufacturer, which may be a test printed circuit board and which may serve as the final package for said dice, col. 8, lines 5 - 20, with a top 42, containing a hole or opening 60 where a plurality of elongated contacts could pass, and through which a tool, including a labeling tool, may enter, over the die and at any given time, removing die and reusing test board, col. 4, line 5 - col. 5, line 8.

Wood does not specify using a label on the carrier, but Friedman does.

Friedman teaches in fig. 3, a method comprising: depositing a plurality or singulated dice into a carrier 18, said carrier comprising a digital storage device 16; and storing in said digital storage device data indicating results of said testing of each of said dice, further comprising storing an identification code in said digital storage device, wherein said identification code comprises information identifying at least one semiconductor wafer from which said dice were singulated, programming digitally where the where lot information includes a panoply of chip information including test results used to determine if the chip passed or failed the test, unique identification to the code, and wafer from which said dice were singulated and the position on the wafer from where the dice came, at least one origin semiconductor wafer information, using data stored in said digital storage device a map of a semiconductor wafer from which at least two of said dice were singulated indicating a location on said wafer of each of said dice and an indication of whether each said die passed or failed said testing, col. 5, lines 4 - 53. Friedman gives motivation in col. 2, line 58 - col. 3, line 3. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Friedman's process with Wood's invention would have been beneficial because the added information would decrease the time necessary to bring a new device, or process, up to volume manufacturing standards while increasing process yield.

Wood and Friedman do not teach labeling each IC with an identification code, but Miyauchi does. Miyauchi teaches in fig. 3, attaching a bar-code label 11 to an IC 10, a

Art Unit: 2823

plurality of elongated contacts (extending down from the chip), col. 2, lines 53 - 56, at any convenient time, and further specifies that 10 may be an unpackaged chip, col. 3, lines 6 - 20. Miyauchi gives motivation in col. 1, lines 53-59. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Wood's and Friedman's process with Miyauchi's invention would have been beneficial because one can select an IC to correct for specific variation.

Claims 14-15, 17-26, 32-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Friedman, and Miyauchi as applied to claims 1, 3, 7-11, 12, 16, 29, 31, 68, 69, 70 above, and further in view of Smith, U.S. Patent No. 6,184,699 B1.

Wood, Friedman, and Miyauchi do not specify that his contacts are resilient, but Smith does. Smith in fig. 6, forms elongated resilient contacts 11 before mounting contacting die 3 resisting variable pressure, col. 4, lines 39 - 55, where a top mounting testing unit would apply more force during testing than after it was removed. Smith gives motivation in col. 4, lines 39-55. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Smith's process with Wood's, Friedman's, and Miyauchi's invention would have been beneficial because it eliminates the need for uniform contact pressure.

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Friedman as applied to claims 1, 3, 7-11, 12, 16, 29, 31, 68, 69, 70 above, and further in view of Kummeth et al., U.S. Patent No. 6,264,533 B1.

Wood, Friedman, and Miyauchi do not specify using a magnetic media for the label, but Kummeth does in the Abstract. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Kummeth's process with Wood, Friedman, and Miyauchi's invention would have been beneficial because magnetic material is low cost, widely available, and reliable.

Response to Arguments

Applicant's arguments filed 25 July 2003 have been fully considered but they are not persuasive. Applicant argues that Friedman's storing the test results of the chips on the carrier tray would not decrease time or increase process yield of Woods invention. Examiner disagrees. The drive towards automating testing of chips has forced some manufactures to install fully robotic systems. The transport of a tray from testing to bonding in a greater package would be speeded up by the information being read off of the tray. If a tray had been taken out of sequence for further quality review, and placed in the process out of order, the information stored on the tray would be current and accessible by any other reader in the process without having to access possibly old and unreliable information in the database

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 703-305-5906. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

William M. Brewster

WB
September 23, 2003